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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/275,808	03/25/99	KANG S	SEC.626

MM42/0913
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EXAMINER	
PERALTA,G	
ART UNIT	**PAPER NUMBER**
2814	3

DATE MAILED: 09/13/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/275,808	KANG ET AL.	
	Examiner	Art Unit	
	Ginette Peralta	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☒ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☒ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) ☒ Notice of References Cited (PTO-892)
15) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
17) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
18) ☐ Notice of Informal Patent Application (PTO-152)
19) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 7 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Han et al. (U.S. Pat. 5,821,152).

Han et al. teaches in Figure 6 a method for forming a capacitor electrode that comprises the steps of forming a first HSG nuclei on a conductive layer pattern by introducing a first amount of a source gas into the reacting chamber while an ambient temperature stabilizes within a first temperature, forming a second HSG nuclei over the first HSG nuclei by introducing a second amount of the source gas into the reacting chamber after the ambient temperature stabilizes within the first temperature range to form a resulting structure, and annealing the resulting structure.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han et al. (U.S. Pat. 5,821,152) in view of Tatsumi et al. (U.S. Pat. 5,385,863).

Han et al. teaches in Figure 6 a method for forming a capacitor electrode that comprises the steps of forming a first HSG nuclei on a conductive layer pattern by introducing a first amount of a source gas into the reacting chamber while an ambient temperature stabilizes within a first temperature, forming a second HSG nuclei over the first HSG nuclei by introducing a second amount of the source gas into the reacting chamber after the ambient temperature stabilizes within the first temperature range to form a resulting structure, and annealing the resulting structure, the first HSG nuclei radii are smaller than the second HSG nuclei, the source gas may be silane (SiH_4) gas or disilane (Si_2H_6) gas. The first temperature range taught by Han et al. is from 570°C to 600°C.

Han et al. does not show the amount of the source gases used, the internal pressure of the reacting chamber, and a first temperature range of 200°C to 500°C.

Tatsumi et al. teaches a method of fabricating a polysilicon film comprising forming a HSG nuclei in a reaction chamber with internal pressure kept at 1×10^{-9}, a temperature range of 500° to 620°C (Col. 6, l. 29-35), and a flow rate of 2 sccm (Col. 7, l. 40-44).

Han et al. discloses the claimed invention except the amount of the source gases used, the internal pressure of the reacting chamber, and a first temperature range of 200°C to 500°C. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the different conditions of the HSG nuclei formation as taught by Tatsumi et al., since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Furthermore, it is inherent that the second amount of the source gas is larger than the first amount of the source gas because the grain size depends on the source gas available, and it is taught by Han et al. that the first HSG nuclei are smaller than the second HSG nuclei, thus the first amount of source gas is smaller than the second amount of source gas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (703)305-7722. The examiner can normally be reached on Monday to Friday 8:00 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703)306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

GP
September 8, 1999

Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800